



**SANYO**

**SANYO  
CASSETTE TAPE DECK  
RD4600<sub>UM</sub>  
SERVICE MANUAL**



## SPECIFICATIONS

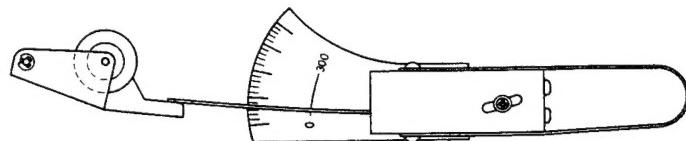
<b>Recording System:</b>	AC bias 4 track 2 channel
<b>Erasing system:</b>	AC erase
<b>Tape speed:</b>	1-7/8 IPS. (4.75 cm/sec.)
<b>Recording time:</b>	60 min (C-60)
<b>Rew &amp; F. Fwd time:</b>	1 min. 30 sec. (C-60)
<b>Frequency response:</b>	30 ~ 13,000 Hz 30 ~ 16,000 Hz (CrO <sub>2</sub> tape)
<b>Signal to Noise ratio:</b>	Dolby OFF: 50dB ON: 58 dB
<b>Wow &amp; Flutter:</b>	0.07% WRMS
<b>Bias oscillator frequency:</b>	90 ~ 103 kHz
<b>Input terminal:</b>	MIC: -70 dB 200 ~ 10 k ohm AUX IN: -20 dB 100K ohm DIN INPUT: -55 dB 10K ohm
<b>Output terminal:</b>	LINE OUT: 0.775V 2K ohm DIN OUTPUT: 0.775V 2K ohm HEADPHONE: 30mV 8 ohm
<b>Power consumption:</b>	20 W
<b>Power source:</b>	AC 110 125, 220V 50/60 Hz
<b>Dimension (approx.):</b>	466 x 284 x 104 mm
<b>Weight (approx.):</b>	7.5 kg

## DISASSEMBLY INSTRUCTION

1. Remove the AC power supply cord from the unit.
2. Remove the Dolby level control knobs on the front of the unit.
3. Put the unit front side down on a soft sheet.
4. Remove two washers and legs each at the front on the cabinet bottom.
5. Turn over unit and take away the chassis from the cabinet.
6. Remove the seven screws (Pan Hd. Tapping 3 x 8 4, Pan Hd. 3 x 35 1, Pan Hd. 3 x 30 2) fixing deck panel to chassis.
7. Remove four level control knobs from shafts.
8. Pull out a shaft from hinge for meter panel and operation panel.  
**NOTE:**  
Should not lose two spring coils for meter deck panel.
9. To remove the meter deck panel from operation panel, pull out a pin fixing damper of panel-up mechanism to chassis, and remove the two jumper lead's plugs which connect deck panel with chassis.

## PINCH ROLLER ADJUSTMENT

1. Set the unit into the PLAY mode.
2. Apply a tension gauge to the pinch roller. Read the gauge at the precise moment when the pinch roller separates from the capstan.
3. If the gauge reading falls more than 100 gr, no adjustment is necessary. If otherwise, make adjustment by changing the force of the spring coil. (See exploded view No. 17)

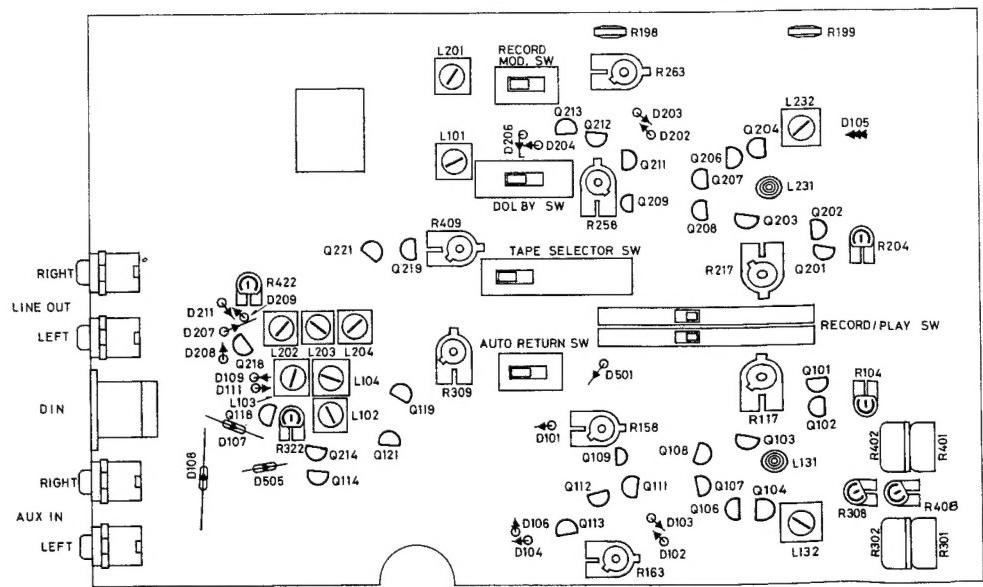
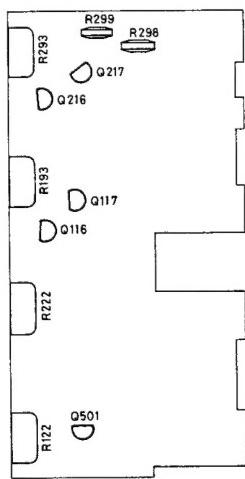
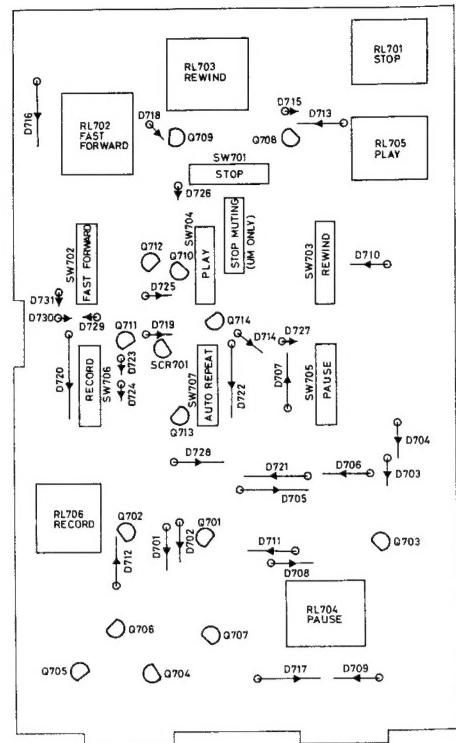
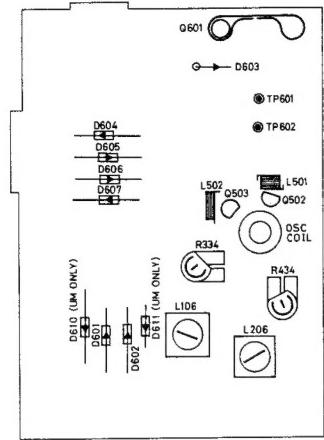


## TORQUE ADJUSTMENT

1. Set the unit into the PLAY, FAST FORWARD or REWIND mode.
2. Measure the each torque with a torque gauge. They should be as following:  

PLAY	30 - 50 gr/cm
FAST FORWARD	more than 90 gr/cm
REWIND	more than 90 gr/cm
3. If the each torque fails to reach the standard value. Clean the drive belt, flywheel, motor pulley, take-up reel, take-up pulley, idler and rewind roller with a cotton swab soaked in alcohol.

## PARTS LOCATION.

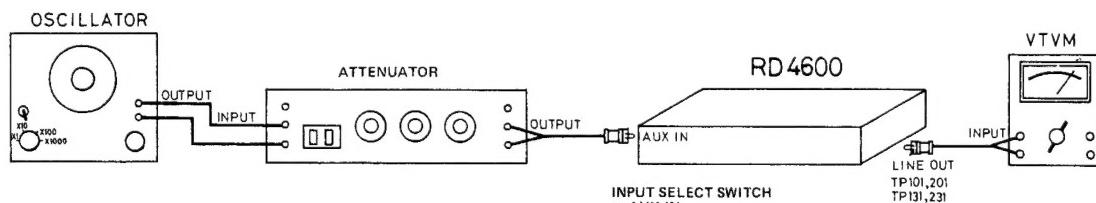


## ADJUSTMENT

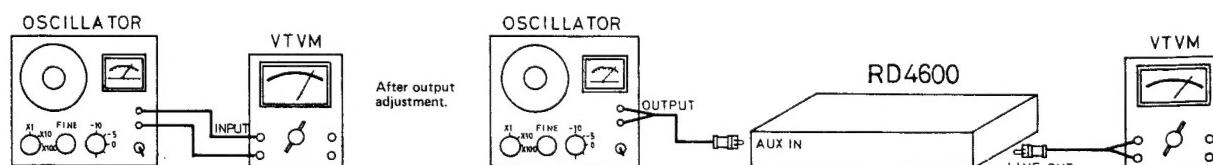
	SWITCH POSITION							VOLUME		
	R/P	LINE/MIC	ST LH CrOz	DOLBY ON/OFF	AUTO RETURN	400Hz OSC	OUTPUT LEVEL	INPUT LEVEL	DOLBY LEVEL	
Head azimuth	P	—	ST	OFF	—	OFF	Adjust	Max.	Center	
Wow & flutter	P	—	ST	OFF	—	OFF	Adjust	Max.	Center	
Playback gain	P	—	ST	OFF	—	OFF	Max.	Max.	Center	
Playback frequency response	P	—	ST	OFF	—	OFF	Adjust	Max.	Center	
Bias trap	① R	MIC	ST	OFF	—	OFF	Max.	Max.	Center	
	② R	MIC	ST	OFF	—	OFF	Max.	Max.	Center	
Bias current	R	MIC	ST	OFF	—	OFF	Max.	Max.	Center	
19kHz trap	R	MIC	ST	OFF	—	OFF	Max.	Max.	Center	
Dolby	① R	LINE	ST	OFF	—	OFF	Max.	Max.	Center	
	② R	LINE	ST	OFF	—	OFF	Max.	Max.	Center	
	③ R	LINE	ST	ON	—	OFF	Max.	Max.	Center	
	④ R	LINE	ST	ON	—	OFF	Max.	Max.	Center	
	⑤ R	LINE	ST	ON/OFF	—	OFF	Max.	Max.	Center	
Recording	① R	LINE	ST	OFF	—	OFF	Max.	Max.	Center	
	② R	LINE	ST	OFF	—	OFF	Max.	Max.	Center	
	③ P	LINE	ST	OFF	—	OFF	Max.	Max.	Center	
	④ R	LINE	CrO <sub>2</sub>	OFF	—	OFF	Max.	Max.	Center	
	⑤ P	LINE	CrO <sub>2</sub>	OFF	—	OFF	Max.	Max.	Center	
400Hz OSC	R	LINE	ST	OFF	—	ON	Max.	Adjust	Center	
Meter	① R	LINE	ST	OFF	—	OFF	Max.	Adjust	Center	
	② R	LINE	ST	OFF	—	OFF	Max.	At position ①	Center	
Peak level	① R	LINE	ST	OFF	—	OFF	Max.	Max.	Center	
	② R	LINE	ST	OFF	—	OFF	Max.	Max.	Center	
	③ R	LINE	ST	OFF	—	OFF	Max.	Max.	Center	

## CONNECTIONS

There is no level meter for the CR oscillator but the attenuator is connected.



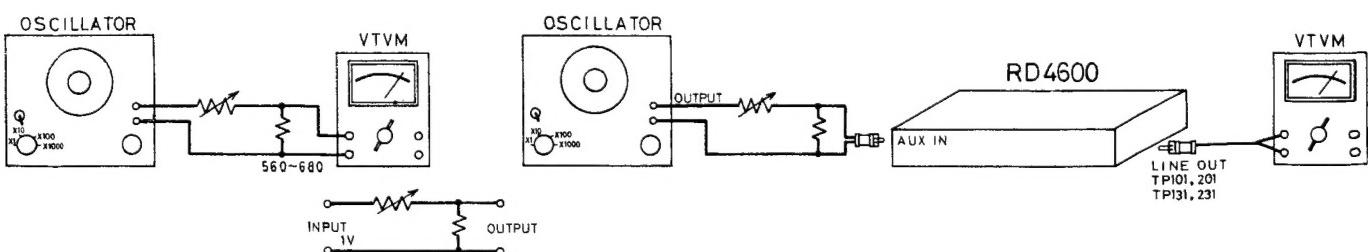
The CR oscillator is hooked to the level meter (VTVM) but the attenuator is not used.



Turn both the FINE and OUTPUT knobs while watching VTVM to adjust the output to 0 dB=1V or 0 dBm=0.775V.

INPUT			OUTPUT		ADJUSTMENT		REMARK
Frequ- ency(Hz)	INPUT Terminal	INPUT Level	OUTPUT Terminal	OUTPUT Level (VTVM)	Left Channel	Right Channel	
		Test tape	LINE OUT	0.1 ~ 1V			10kHz recorded test tape.
		Test tape	LINE OUT	0.1 ~ 1V			3kHz recorded test tape.
400		400Hz Dolby test tape	TP-131 231	580mV	SVR R117	SVR R217	400Hz Dolby test tape. Adjust SVRs to obtain output of 580mV.
		Test tape	LINE OUT	0.1 ~ 1V	SVR R104	SVR R204	Playback 1kHz & 10kHz using test tape. Adjust SVRs R104 & R204 for standard frequency characteristics.
		Non input power	LINE OUT	Hum + noise + bias leakage = less than 6mV	L101	L201	Adjust L101 & L201 to obtain output of min.
		Non input power	PA		L106	L206	Adjust L106 & L206 to obtain output of min (less than 200mV).
		Non input power	TP-101 201	1.2mV	SVR R334	SVR R434	Adjust SVRs to obtain output of standard output.
19K	MIC		LINE OUT		L132	L133	Adjust L132 & L133 to obtain output of min.
400	AUX IN		TP-131 231	580mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of 580mV.
5K	AUX IN	Input ① - 30dB	TP-131 231	18mV			Adjust input power to input ① - 30dB.
5K	AUX IN	Input ① - 30dB	TP-131 231	58mV	SVR R163	SVR R263	Turn SVR R158 & R258 to obtain output of max. Adjust SVR R163 & R263 to obtain output of standard output.
5K	AUX IN	Input ① - 30dB	TP-131 231	46mV	SVR R158	SVR R258	Adjust SVR R158 & R258 to obtain output of standard output.
5K	AUX IN	Input ① - 30dB	TP-131 231				Turn ON & OFF Dolby switch. Confirm difference in output is larger than 8dB. If not, re-adjust.
400	AUX IN	89mV ± 12.6mV	TP-131 231	580mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of standard output.
400	AUX IN	Same as input ①	TP-131 231	580mV	SVR R309	SVR R409	Playback recorded tape. Adjust SVRs R309 & R409 to make output levels identical. Use BASF C=60 tape.
400	AUX IN	Playback ②	TP-131 231	580mV			
400	AUX IN	Same as input ①	TP-131 231	580mV	SVR R308	SVR R408	Playback recorded tape. Adjust SVRs R308 & R408 to make output levels identical. Use Chrome C=60 tape.
400	AUX IN	Playback ④	TP-131 231	580mV			
			LINE OUT	0.775V	Input level VR	Input level VR	Adjust input level VRs to obtain output of 0.775V. OSC frequency $400 \pm 30\text{dB}$ .
400	AUX IN	100mV ± 18mV	TP-131 231	460mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of standard output.
400	AUX IN	Same as input ①			SVR R199	SVR R299	Adjust SVRs R199 & R299 until meters on amplifier stand at OVU.
400	AUX IN	100mV ± 18mV	TP-131 231	460mV	Input level VR	Input level VR	Adjust input level VRs to obtain output of standard output.
400	AUX IN	Same as input ①	TP-131 231	460mV	SVR R198	SVR R298	Meter readings should be 0dB at standard output level, at which peak indicator lamps should go on. Adjust SVRs so peak indicator lamps go off when input, decreases by 1dB.
400	AUX IN	Input - 1dB	TP-131 231	460mV	SVR R198	SVR R298	

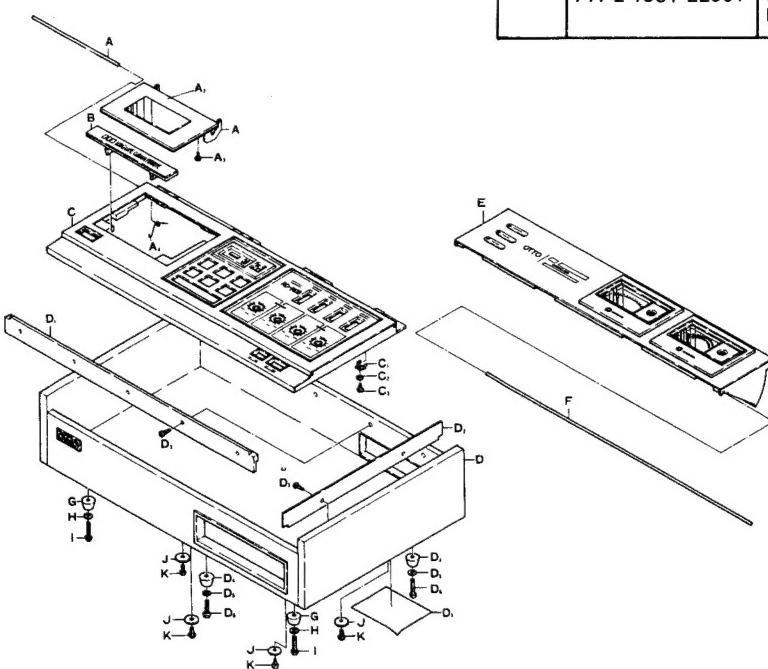
- NOTES.
- Keep at hand test tape, VTVM, CR OSC and tester in making repairs and conducting inspection work.
  - Do not allow grounding current to flow with voltage being applied to base-emitter circuit of Q601 (2SC1383), when conducting inspection or making repairs. Otherwise, transistor will be destroyed.
  - Discharge capacitors prior to parts replacement.



EXAMPLE: Regulate VR so that output is 79mV to attenuate 22 dB at input of 1V.  
 Regulate VR so that output is 7.9mV to attenuate 42 dB at input of 1V.  
 Regulate VR so that output is 2.5mV to attenuate 52 dB at input of 1V.

## PARTS LIST

Key. No.	Part No.	Description	Q'ty	Key. No.	Part No.	Description	Q'ty
<b>PACKING</b>							
	141-6-132T-51603	Individual carton	1		141-2-851T-70600	Spring coil, Record mechanism	1
	141-6-313T-01700	Styrol filler, Side pad	2		141-2-488T-00200	Lock pin, Solenoide couple	1
	141-6-479T-01900	Label, DOLBY	1		141-2-743T-03300	Arm, Solenoide mtg.	1
	141-6-455T-01101	Serial number plate	2		141-2-371T-05801	Bracket, Transformer mtg.	1
	141-6-411T-56401	Instruction booklet	1		141-2-143T-51400	Marking plate, Rear jack base	1
	141-6-472T-05604	Caution label, Power supply cord	1		147-2-411T-00600	Plate nut, Insert chassis	2
	141-6-415T-07101	Notice, Head slide protector	1		141-2-751T-74300	Shaft, REC lever fulcrum	1
	141-6-316T-60700	Pad, Remote control unit	1		141-0-741T-11400	Lever assembly	1
	141-117-00	Remote control unit RB9600	1		141-2-464T-13100	Fixer, Panel up couple	1
		Polyethylene bag 100 x 200mm,	4		141-0-731T-07400	Slide assembly, Panel up lock	1
		Remote control unit & Cord			141-2-741T-63800	Lever, Slide (T-074) mtg.	1
		Polyethylene bag 500 x 700mm, Set	1		141-2-488T-00400	Lock pin, Lever (T-638) mtg.	1
	141-6-415T-11100	Notice, Swedish	1		141-2-751T-66900	Adhesive tape 5 x 10 x 5mm, Slide (T-074) to Lever (T-638)	1
	141-6-421T-27600	Schematic diagram	1		141-2-614T-04400	Shaft, Chassis (T-143) fixed	1
	141-6-415T-06700	Notice, SEMKO	1		141-2-851T-71100	Lever, Panel up lock	1
	147-2-196T-00300	Cleaner stick	1		141-2-851T-76400	Spring coil, Lever (T-044) lock operation	1
<b>CABINET</b>							
D	141-0-111T-05403	Cabinet assembly	1		141-2-377T-12500	Spring coil, Shaft (T-623) insert	1
C	141-0-121T-02000	Deck panel assembly, Control	1		147-2-411T-00601	Bracket, VR mtg.	1
A	141-0-124T-00900	Cassette compartment lid assembly	1		123-2-457T-11700	Plate nut, Bracket (T-125) P.C.B. insert	1
B	141-0-134T-01201	Head cover assembly	1		141-2-365T-22200	Special washer, VR mtg. to bracket (T-125) P.C.B.	4
E	141-0-121T-01801	Deck panel assembly, Meter	1		141-2-164T-09100	Bracket, DOLBY CAL SW mtg.	1
G	123-2-174R-10700	Stand, Rubber leg	2		141-2-143T-51300	Slide knob, CAL OSC SW	1
J	141-2-457T-05300	Special washer, Cabinet fixer	4		147-2-411T-00601	Marking plate, Front jack base	1
F	141-2-751T-61900	Shaft, Meter deck panels' fulcrum	1		141-2-322T-21100	Plate nut, Marking plate (T-513) insert	1
	141-2-163T-17500	Rotary knob, DOLBY CAL.	2		141-2-322T-21200	Shield plate	1
	141-2-851T-76300	Spring coil, (T-175) mtg.	2		141-2-322T-21300	Shield plate	1
	141-2-163T-17100	Rotary knob, DOLBY CAL.	2		141-2-322T-21500	Shield plate	1
	141-0-163T-05600	Rotary knob assembly	4		141-2-411T-05900	Plate nut, REC spring SW mtg.	1
	141-2-157T-18300	Inlay, PAUSE	1		141-0-741T-12600	Lever assembly, Rec mechanism	1
	141-2-157T-18400	Inlay, F. FWD	1		141-2-322T-28400	Shield plate, PT	1
	141-2-157T-18500	Inlay, AUTO REPEAT PLAY	1		141-2-322T-23200	Shield plate, Chassis (T-143) mtg.	1
	141-2-157T-18600	Inlay, REC	1		141-2-311T-14400	Chassis, Relay SW	1
	141-2-157T-18700	Inlay, PLAY	1		141-2-851T-70800	Spring coil	6
	141-2-157T-18800	Inlay, REWIND	1		141-2-445T-13400	Rubber cushion, PL support	6
		Fiber washer 4 x 13 x 0.5mm, chassis	1		141-2-751T-62100	Shaft, Push button (T-178) mtg.	2
<b>CHASSIS</b>							
	141-2-311T-14300	Chassis	1		141-2-161T-17800	Push button	6
	141-2-741T-58700	Lever, Record mechanism	1		141-2-135T-41200	Cover, voltage select	1
					141-2-741T-80600	Fiber washer 3 x 8 x 0.5mm PCB mtg.	1
					141-2-569T-00900	Lever	1
					141-6-476T-03100	Guide shaft	1
					141-6-476T-04200	Fiber heet 8 x 15 x 1 mm, Chassis mtg.	1
					141-2-135T-22001	Indication label	2
						Indication label	1
						Cover, Meter adjust holl	2
						Felt 10 x10 x10mm, Shield palte mtg.	1



PARTS LIST

Key. No.	Part No.	Description	Q'ty	Key. No.	Part No.	Description	Q'ty				
CHASSIS											
	141-0-161T-01700	Push button assembly, stop	1		4-235T-21800	Socket 3P, Panel ~ Power supply P.C.B.	1				
	141-2-741T-58400	Lever	1		141-2-472T-01200	Lug, Lead fixer	1				
	141-2-851T-70700	Spring coil	1		4-511T-04072	Meter, VU	2				
	141-2-751T-62000	Shaft, Push button (T-017) mtg.	1		4-235R-15000	Socket, Operation P.C.B. ~ REC solenoid (-)	3				
	123-2-445R-11000	Rubber cushion, Chassis (T-144) insert	1			AUDIO Rewind SW					
	141-0-162T-02200	Lever knob assembly, Rec mode, Dolby N.R, Auto return	3			REC solenoid (+)					
	141-2-741T-58600	Lever	4		4-235T-27400	Socket	1				
		Rubber cushion 4 x 10 x 1mm, Lever SW	8		141-2-472T-01200	Lug, Lead fixer	2				
	141-2-161T-17600	Push button, POWER SW	1		141-2-472T-02300	Lug, VR earth	4				
	141-2-377T-12400	Bracket, Chassis (T-143) fixer	1		123-2-474R-00200	Tip plug, Auto repeat PL relay	1				
		Rubber cushion 8 x 10 x 10mm, P.C.B. and Bracket (T-124) mtg.	1		141-2-472T-01200	Lug, Bias lead fixer	1				
	141-2-377T-12600	Bracket, Power supply P.C.B. fixer	1		141-2-464T-08700	Fixer, Lead	2				
	141-2-161T-18200	Push button, MEMORY SW	1		4-235T-21900	Socket, MAIN ~ Operating P.C.B. (2-1 ~ 5) 5P	1				
	141-2-161T-18000	Push button, EJECT	1		4-235T-21900	Socket, MAIN ~ Power supply (3-1 ~ 5) 5P	1				
	141-2-367T-25300	Bracket, Remote control socket mtg.	1		141-2-472T-02200	Lug, Shield plate fixer	1				
	141-2-143T-57100	Marking plate, Voltage select socket	1			Adhesive tape 12 x 18mm, Shield plate	5				
	141-2-373T-04900	Bracket, Meter fixer	1			Adhesive tape 12 x 22mm, Shield plate	2				
	141-2-741T-63900	Lever, Lever lock (614T-044) take off	1			Adhesive tape 12 x 10mm, Shield plate SW	3				
	141-2-462T-28300	Boss, Lever (T-639) mtg.	1			Adhesive tape 12 x 20mm, Shield plate	1				
	141-2-445T-13500	Rubber cushion, Meter (T-04072)	2		123-2-368R-12900	Heat sink, 2SC1383	1				
	141-2-374T-08000	Bracket, PL (T-048) mtg.	1		123-2-474R-00200	Chip plug,	2				
	141-2-681T-01901	Sleeve, Damper	1	PRINTED CIRCUIT BOARD ASSY (OPERATION)							
	141-2-751T-40700	Shaft, Damper	1								
	141-2-315T-10700	Spring pin 2 x 10mm, Damper mtg.	1		4-226T-66191	Printed circuit board assembly, OPERATION	1				
	141-2-488T-00200	Rainforcement, Damper stopper	1		4-231T-11901	Special switch, Operation	7				
	141-2-851T-76100	Lock pin, Damper mtg.	1		4-231T-11902	Special switch, Muting	1				
	141-2-851T-76200	Spring coil, Panel up	1		4-232T-01803	Relay	4				
	141-2-464T-13600	Spring coil, Panel up	1		4-612T-05700	Lamp 14V 30mA L=150mm	2				
	141-2-851T-53400	Fixer, Spring coil (T-762) mtg.	1		4-226T-07300	Plug 12 pin, Mechanism ~ Operating P.C.B.	1				
	141-2-445T-08700	Spring coil, Lever (T-639)	1		4-236T-06100	Plug 5 pin, Operating P.C.B. ~ MAIN P.C.B.	1				
	141-0-162T-02201	Rubber cushion, PL mtg.	1		PL702,703	Lamp 14V 30mA L=90mm	2				
	141-0-1617-01600	Lever knob Assy, Tape select	1		PL704,706	Lamp 14V 30mA L=130mm	2				
	141-2-751T-62300	Push button assy, panel up	1		RL702,703	4-232T-04100 or 4-232T-04171 or 4-253T-01019	Relay	2			
		Shaft, panel up connection rod	1		Q701	H.F. choke coil 4.7mH	1				
ELECTRICAL PARTS											
T501	4-251T-35100	Power transformer	1	Q702,709	Transistor 2SC945Q	7					
	4-264T-04400	Magnetic coil, REC	1	711,712,							
	4-231T-40800	Power switch	1	713							
	4-231T-11903	Special switch, REC solenoid	2	Q703,705	Transistor 2SA564R or 2SA573 (4)	2					
	4-231T-53600	Switch, voltage select	1	Q707	Transistor 2SC945R	1					
	123-2-464R-14400	Fixer, Power supply cord	1	Q704,708	Transistor 2SA561(O, Y)	2					
	123-2-474R-00200	Tip plug, PT 6V	1	Q710,714	Transistor 2SA564R or 2SA573(4)	2					
	141-2-464T-07400	Fixer, AC ourd	1	SCR701	Silicon control rectifier M21C	1					
	141-2-464T-08700	Fixer, Wiring disposition	1	D701,702,	Diode DS-442 or 1S2473	31					
	123-2-474R-00200	Tip plug, REC solenoid	2	703,704,							
	4-243T-03100	Lead, RCA shield wire	4	705,706,							
	4-231T-03101 or	Diode 1N4002, REC solenoid	2	707,708,							
D608,609	123-2-382R-00600	Terminal, REC. solenoid, Solenoid SW	3	709,710,							
	141-2-472T-01200	Lug, AC lead fixer	1	711,712,							
	123-2-472R-00600	Lug, R/P head lead fixer	1	713,714,							
	123-2-472R-00600	Lug, Power SW earth	1	715,716,							
	123-2-472R-00400	Lug, Power SW earth	1	717,718,							
	4-241T-08300	Cassette tape C-12 type	1	719,720,							
	141-2-472T-01200	Lug, REC solenoid & SW lead fixer	1	721,722,							
	4-243T-77172	Power supply cord	1	723,724,							
	4-234T-03600	Fuse 2A SEMCO	1	725,726,							
	4-234T-01900	Fuse 0.8A SEMCO	2	727,728,							
	141-2-383T-02001	Fuse holder 3P	1	729,730,							
	123-2-472R-00600	Lug, PT case earth, Power SW shield earth	2	731							
	123-2-472R-00400	Lug, REC solenoid earth	1	D732	Diode RD8.2E(B, A)	1					
PL003	4-612R-12484	Lamp, DOLBY 6V 30mA	1								
PL004,005	4-612R-10172	Lamp, Peak indicator 6V 30mA L=500mm	2								
PL001	4-612R-12484	Lamp, MEMORY 6V 30mA	1								
PL002	4-612R-12484	Lamp, CrO <sub>2</sub> 6V 30mA	1								
	4-235T-22100	Socket 8P, Panel ~ MAIN	1								

NOTES: 1. Parts orders must contain Model Number, Part Number and Description.  
 2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.  
 3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

PARTS LIST

Key. No.	Part No.	Description	Q'ty	Key. No.	Part No.	Description	Q'ty				
PRINTED CIRCUIT BOARD ASSY (OPERATION)											
<b>CAPACITORS</b>											
C708		Electrolytic 0.22μF 16V	1	R512		Carbon 1.8K ohm ±10%, 1/4W	1				
C716		Electrolytic 0.47μF 16V	1	R509		Carbon 3.9K ohm ±10%, 1/4W	1				
C706,710		Electrolytic 1μF 16V	2	R342,442		Carbon 4.7K ohm ±10%, 1/4W	2				
C705,707		Electrolytic 4.7μF 16V	2	R127,227		Carbon 6.8K ohm ±5%, 1/4W	2				
C700,703		Electrolytic 10μF 16V	2	R191,291, 507,516		Carbon 15K ohm ±10%, 1/4W	4				
C704		Electrolytic 22μF 16V	1	R128,228		Carbon 18K ohm ±5%, 1/4W	2				
C715		Electrolytic 22μF 25V	1	R506,513		Carbon 18K ohm ±10%, 1/4W	2				
C701		Electrolytic 47μF 25V	1	R514		Carbon 22K ohm ±10%, 1/4W	1				
C702		Electrolytic 100μF 16V	1	R508		Carbon 47K ohm ±10%, 1/4W	1				
<b>RESISTORS</b>											
R754		Carbon 33 ohm ±10%, 1/4W	1	R129,229, 500,501		Carbon 68K ohm ±10%, 1/4W	4				
R751		Carbon 150 ohm ±10%, 1/4W	1	R196,296		Carbon 100K ohm ±10%, 1/4W	2				
R755		Carbon 220 ohm ±10%, 1/4W	1	PRINTED CIRCUIT BOARD ASSY (VR)							
R720,725,752		Carbon 1K ohm ±10%, 1/4W	3	PRINTED CIRCUIT BOARD ASSY (MAIN AMP.)							
R700,702		Carbon 1.5K ohm ±10%, 1/4W	2	R301,302, 401,402	4-226T-60891	Printed circuit board assembly, MAIN	1				
R710		Carbon 1.8K ohm ±10%, 1/4W	1	R117,217	4-222T-34200	Variable resistor 20KB × 2	2				
R708,709, 715		Carbon 2.2K ohm ±10%, 1/4W	3	R199	4-222R-60900	Potentiometer 50KB, Potentiometer 2KB, Left meter	2				
R750,756		Carbon 2.7K ohm ±10%, 1/4W	2	R198	4-222T-03100	Potentiometer 5KB, Left peak ind.	1				
R705		Carbon 3.9K ohm ±10%, 1/4W	1	R163,263	4-222T-32200	Potentiometer 500B, DOLBY gain	2				
R723,724		Carbon 5.6K ohm ±10%, 1/4W	2	R158,258	4-222T-39475	Potentiometer 10KB, DOLBY ATT.	2				
R729		Carbon 6.8K ohm ±10%, 1/4W	1	R104,204	4-222T-34800	Variable resistor 200KB, Frequency response (Playback) high	2				
R730		Carbon 8.2K ohm ±10%, 1/4W	1	R308,408	4-222T-29800	Variable resistor 10KB, Bias	2				
R704,706, 722,728, 740		Carbon 10K ohm ±10%, 1/4W	5	R322,422	4-222T-29871	Variable resistor 20KB, CrO <sub>2</sub> frequency response (Record)	2				
R714		Carbon 12K ohm ±10%, 1/4W	1	R309,409	4-222R-61500	Variable resistor 10KB, Bias	2				
R716,721		Carbon 15K ohm ±10%, 1/4W	2	L101,201	4-255R-10400	Choke coil 5.6mH, IF	2				
R717,727		Carbon 33K ohm ±10%, 1/4W	2	L102,202	4-252T-03200	Choke coil 10mH	2				
R703,719		Carbon 47K ohm ±10%, 1/4W	2	L103,203	4-252T-03100	Choke coil 12mH	2				
R707		Carbon 100K ohm ±10%, 1/4W	1	L104,204	4-252T-03300	Choke coil 6.8mH	2				
R711,712, 713		Carbon 120K ohm ±10%, 1/4W	3	L131,231	4-252T-02900	L.F. choke coil 36mH, DOLBY	2				
R718,726		Carbon 270K ohm ±10%, 1/4W	2	L132,232	4-252T-02800	L.H. choke coil 23mH, 19kHz trap DOLBY	2				
PRINTED CIRCUIT BOARD ASSY (VR)											
R122,222	4-226T-60999	Printed circuit board assembly, VR	1	4-235T-25000	Socket, MIC	2					
R193,293	4-222T-34000	Variable resistor 50KA, Record VR	2	4-235T-25100	Socket, Headphone	1					
	4-222T-33900	Variable resistor 10KA, Line out VR	2	4-235T-23700	Socket, LINE IN, LINE OUT	4					
R299	4-222T-03100	Variable resistor 2KB, Right meter	1	4-235T-23100	Socket, DIN	1					
R298	4-222R-61100	Variable resistor 5KB, Right Peak ind.	1	4-231T-40100	Slide switch, Auto return	1					
S7	4-231T-42000	Switch, DOLBY 400Hz OSC	1	4-231T-11302	Slide switch, R/P	2					
	4-237T-00100	Terminal, TP	2	4-231T-40200	Slide switch, DOLBY	1					
Q116,216		Transistor 2SC945P, Q	2	4-231T-40171	Slide switch, Line/MIC DIN	1					
Q117,217, 501		Transistor 2SC945P	3	4-231T-16000	Slide switch, CrO <sub>2</sub> /LH/Normal	1					
<b>CAPACITORS</b>											
C113,213, 114,214, 116,216		Electrolytic 4.7μF 16V	6	4-235R-15000	Terminal, Lead relay	1					
C512		Electrolytic 10μF 16V	1	4-236T-06100	Plug 5 pin, Mechanism ~ MAIN	1					
C117,217		Electrolytic 33μF 16V	2	4-236T-06000	Plug 8 pin, Panel ~ MAIN	1					
C511		Electrolytic 100μF 6.3V	1	Q109,209	FET 2SK30D	2					
C500		Mylar 0.0022μF ±20% 50WV	1	Q101,201	Transistor 2SC644T, S	2					
C507,508, 509		Mylar 0.01μF ±10% 50WV	3	Q102,202, 103,203	Transistor 2SC644S	4					
C506		Mylar 0.039 or 0.04μF ±20% 50WV	1	Q104,204	Transistor 2SC945R	2					
<b>RESISTORS</b>											
R192,292		Carbon 100 ohm ±5%, 1/4W	2	Q106,206	Transistor 2SA628E	2					
R194,294		Carbon 100 ohm ±10%, 1/4W	2	Q107,207	Transistor 2SC644R	2					
R329,429		Carbon 180 ohm ±10%, 1/4W	2	Q108,208	Transistor 2SC945Q	2					
R197,297		Carbon 820 ohm ±10%, 1/4W	2	Q111,211	Transistor 2SC945R	2					
				Q112,212	Transistor 2SA628E	2					
				Q113,213	Transistor 2SC945R, Q	2					
				Q114,214	Transistor 2SD227W, S	2					
				Q118,218, 119,219	Transistor 2SC945P	6					
				121,221							
				D101,104, 204,505	Diode 1N60	4					
				D102,103, 106,202,	Diode DS442	6					
				203,206							
				D107,207, 108,208	Diode 1N60	4					
				D109,209, 111,211	Diode DS442	4					

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## PARTS LIST

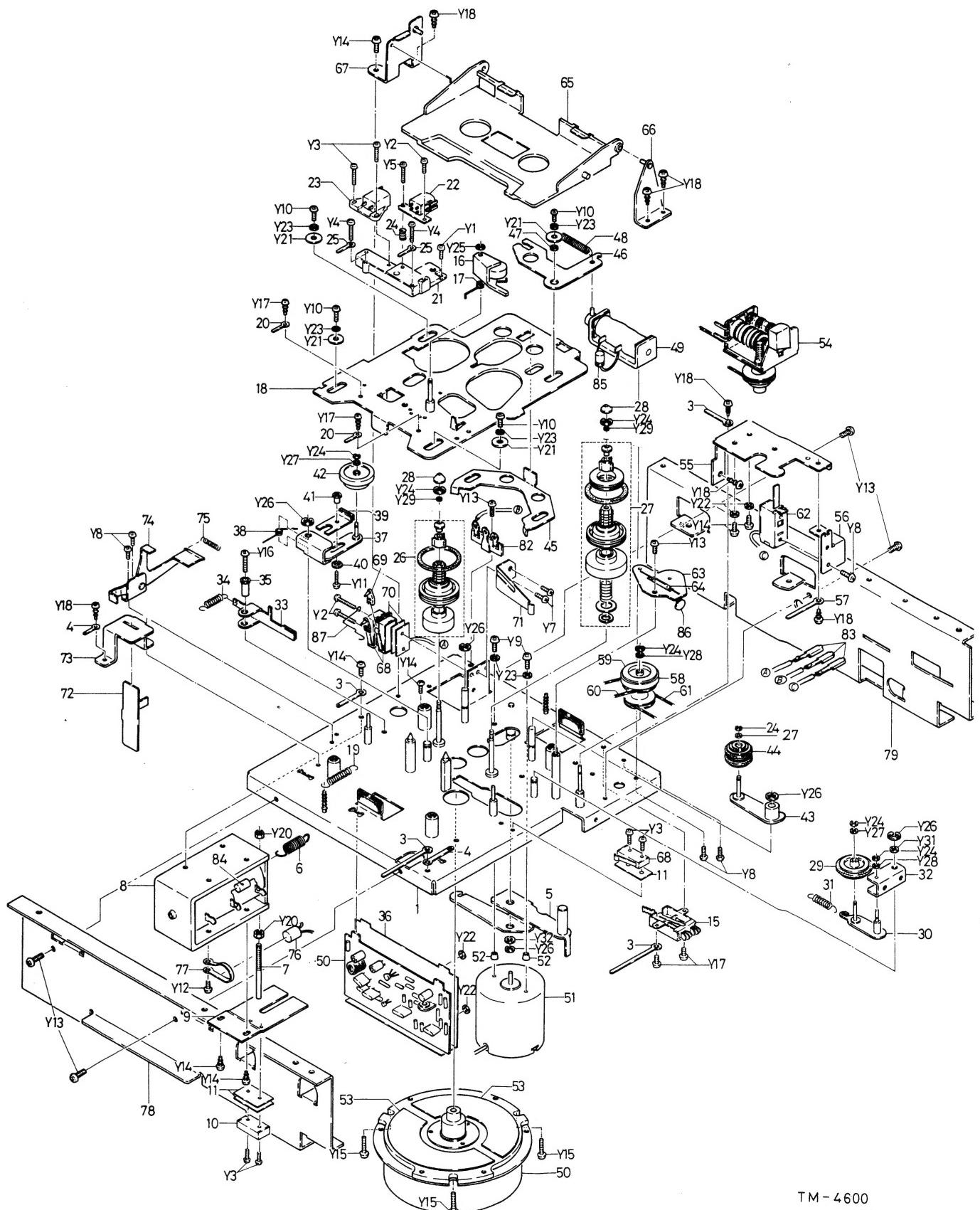
Key. No.	Part No.	Description	Q'ty	Key. No.	Part No.	Description	Q'ty
<b>PRINTED CIRCUIT BOARD ASSY (POWER)</b>							
TP601,602	4-236T-06400 123-2-474R-00200	Plug 3 pin, POWER ~ Panel Chip plug, Mechanism power supply, Power P.C.B. ~ Mechanism memory P.L.	1 3	7	141-2-569T-00300	Guide shaft, Spring hook	1
Q601	123-2-382R-00291 123-2-474R-00200	Terminal Chip plug, C620 ~ REC solenoid	2 1	8	4-264T-04700	Solenoid, Play	1
Q502,503		Transistor 2SC1383R	1	9	141-2-365T-22500	Bracket, Micro SW mtg.	1
D601,602		Transistor 2SC945P	2	10	4-231T-11902	Switch, Solenoid coil changer	1
D604,605, 606,607		Diode 1N4002	2	11	141-2-327T-07600	Insulator, Micro SW	4
D603		Diode 1N4001	4	12	141-2-751T-67900	Shaft, Muting SW operating	1
D610,611		Diode WZ 192	1	13	4-231T-11903	Switch, Muting	1
C620		Diode 1N4002	2	14	141-2-365T-25000	Bracket, Switch mtg.	1
C610		<b>CAPACITORS</b>		15	4-231T-31171	Switch, Head slide operating (Snap SW)	1
C607		Electrolytic 470μF 16WV	1	16	141-0-545T-01400	Pinch roller lever assembly	1
C604		Electrolytic 100μF 25WV	1	17	141-2-852T-18000	Spring wire, Pinch lever pressure	1
C605,606		Electrolytic 1000μF 25WV	1	18	141-0-731T-08500	Slide assembly, Head	1
C613		Electrolytic 1000μF 35WV	1	19	141-2-851T-72600	Spring coil, Slide returning	1
C522		Electrolytic Block-470 + 1000μF 25WV	1	20	123-2-472R-00600	Lug, Head slide	1
C193,293		Mylar 0.01μF ±20% 50WV	1	21	141-2-375T-05900	Bracket, Head mtg.	1
C191,291		Mylar 0.033μF ±20% 50WV	1	22	4-242T-15900	R/P head	1
C601,602, 603		Ceramic 100pF ±10% 50WV	2	23	4-242T-16800	E head	1
C521		Ceramic 180pF ±5% 50WV	2	24	141-2-851T-58400	Spring coil, Head alignment adjust	1
C614,615		Ceramic 0.01μF +100 -0%	3	25	141-2-472T-02200	Lug, R/P head lead alignment	2
R602		500WV		26	141-0-531T-02600	Reel plate assembly, Supply	1
R524,526		Styrol 2200pF ±5% 500WV	1	27	141-0-531T-02700	Reel plate assembly, Take up	1
R519		Ceramic 0.01μF +80-20% 50WV	2	28	141-2-536T-01500	Reel cap	2
R521		<b>RESISTORS</b>		29	141-0-662T-01300	Roller assembly, Take up idlar	1
R601		Carbon 5.6 ohm ±10%, 1/4W	1	30	141-0-741T-10400	Lever assembly, Take up idlar	1
R523		Carbon 4.7 ohm ±10%, 1/4W	2	31	141-2-851T-62700	Spring coil, Idlar pressure	1
R522		Carbon 56 ohm ±10%, 1/4W	1	32	141-2-741T-59300	Lever, Idlar	1
<b>SCREW MOUNTING</b>							
		Pan head screw 2 x 18mm	2	33	141-0-741T-10500	Lever assembly, Back tension	1
		Pan head screw 2.6 x 4mm	4	34	141-2-851T-72900	Spring coil, Back tension	1
		Pan head screw 2.6 x 6mm	2	35	141-2-751T-63600	Shaft, Back tension	1
		Pan head screw 3 x 6mm	6	36	141-2-322T-22100	Shield plate, Motor	1
		Pan head screw 3 x 8mm	6	37	141-0-741T-10700	Lever assembly, F. FWD REW	1
		Pan head screw 3 x 10mm	1	38	141-2-852T-24800	Spring wire, REW F. FWD roller pressure	1
		Pan head screw 3 x 12mm	2	39	141-0-731T-07300	Slide assembly, Tension	1
		Pan head screw 3 x 30mm	2	40	141-2-462T-24700	Boss, Slide bearing	1
		Pan head screw 3 x 35mm	1	41	141-2-462T-29800	Boss, Spring hook	1
		Pan head screw 4 x 8mm	1	42	141-2-662T-07901	Roller, F. FWD REW	1
		Pan head screw 4 x 10mm	2	43	141-0-741T-10900	Lever assembly	1
		Pan head screw 4 x 16mm	4	44	141-0-662T-01600	Roller assembly, F. FWD filiction	1
		Pan head screw 4 x 20mm	2	45	141-2-731T-26200	Slide, Brake lower	1
		Tapping screw 3 x 6mm	7	46	141-2-741T-59800	Lever, Slide operation	1
		Tapping screw 3 x 8mm	43	47	141-2-683T-03500	Ring	1
		Tapping screw 3 x 10mm	9	48	141-2-851T-73000	Spring coil, Slide pressure	1
		Tapping screw 3 x 12mm	2	49	4-264T-04300	Solenoid, Brake	1
		Regular hexagon bolt 3 x 16mm	2	50	4-527T-07600	Brushless motor assembly	1
		Regular hexagon nut 3mm	8	51	4-527T-07500	Commute motor assembly	1
		Washer 3mm	2	52	141-2-461T-19600	Pipe, Motor mtg.	2
		Washer 2mm	2	53	141-2-322T-21700	Shield plate	2
		Washer 3 x 8 x 0.5mm	1	54	141-2-811T-03000	Counter	1
		Washer 3 x 10 x 0.5mm	3	55	141-2-812T-04100	Bracket, Counter mtg.	1
		Washer 4.5 x 10 x 0.8mm	2	56	141-2-365T-07200	Bracket, Switch mtg.	1
		External tooth lock washer 4mm	1	57	141-2-472T-01000	Lug, Motor lead retainer	2
		External "E" ring 2mm	1	58	141-2-661T-18200	Pulley, Relay	1
		External "E" ring 3mm	1	59	141-2-765T-01300	Magnet	1
<b>MECHANISM</b>							
1	149-085-00	Mechanism assembly TM-4600	1	60	141-2-562T-03100	Round belt, Counter drive reel side	1
1	141-0-311T-02200	Chassis assembly	1	61	141-2-562T-03400	Round belt, Counter drive counter side	1
3	141-2-472T-01000	Lug, Brake solenoid, Terminal board	4	62	4-231T-42700	Push switch, Counter	1
4	141-2-472R-00600	Chassis upper, Bracket counter		63	4-226T-61400	Printed circuit board, Lead switch mtg	1
5	141-0-741T-10301	Lug, Bracket play SW mtg.	1	64	4-231T-41300	Lead switch	1
6	141-2-851T-72500	Lever assembly, Slide operation	1	65	141-0-741T-05300	Lever assembly, Cassette up lever	1
		Spring coil, Solenoid joint	1	66	141-0-747T-01000	Bracket lever assembly	1
				67	4-231T-11902	Switch, Prevent the miss recording Eject stop	2
				68	141-2-243T-06300	Base, Micro switch operation	2
				69	141-2-327T-07600	Insulator, Micro switch mtg.	4
				70	141-2-853T-32800	Spring plate, Cassette pressure	1
				71	141-2-741T-59900	Lever, Button slide	1
				72	141-2-747T-06800	Bracket, Lever mtg.	1
				73	141-0-741T-11000	Lever assembly, Eject	1
				74	141-2-751T-58600	Spring coil, Lever returning	1
				75	141-2-243T-06300	Electrical capacitor 470μF 16V, Solenoid noise prevent	1
				76	147-2-363T-02100	Bracket, Capacitor mtg.	1
				77	141-2-214T-00900	Bracket, Front flame	1
				78	141-2-214T-00901 or	Bracket, Rear flame	1
				79	141-2-214T-01000 or	Bracket Assy, Lever (65) fulcrum right	1
				67	141-0-741T-00900		

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PARTS LIST

EXPLODED VIEW

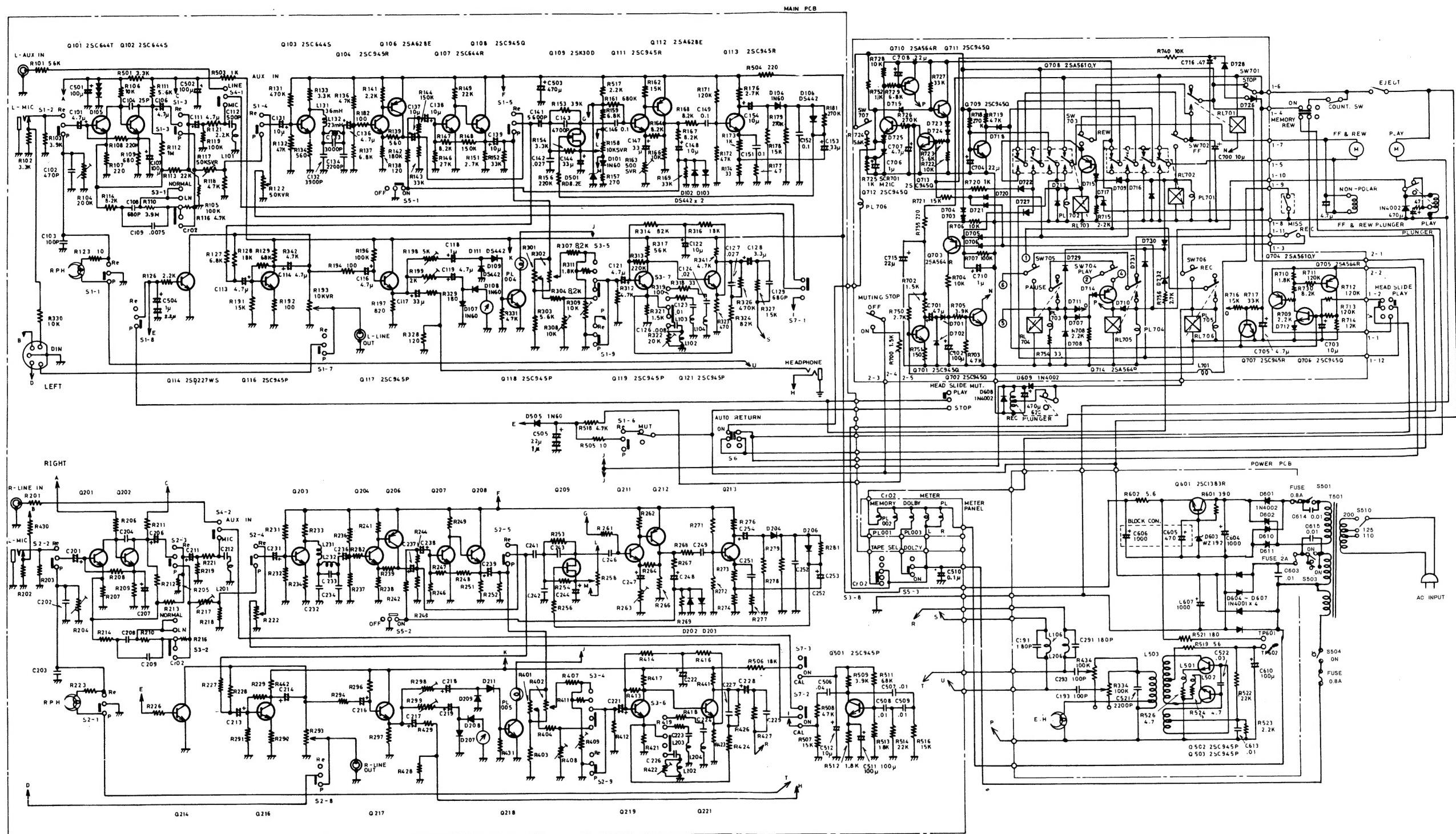
Key No.	Part No.	Description	Q'ty
<b>MECHANISM</b>			
80	4-235T-25200	Socket, Operation part connect	1
81	4-235T-21900	Socket, Mechanism MAIN connect	1
82	4-237T-05800	Terminal board, Lug plate	1
83	123-2-382R-00600	Terminal	3
84	Diode 1N4002	Solenoid noise prevent	1
85	Electrical capacitor 4.7μF 25V,	Solenoid noise prevent	1
86	Ceramic capa. 0.01μF +80-20%50WV	Stopper, Micro switch mtg.	1
87	141-2-465T-12000		1
<b>MECHANISM SCREW</b>			
Y 1		Pan head screw 2 x 4mm	1
Y 2		Pan head screw 2 x 5mm	1
Y 3		Pan head screw 2 x 8mm	5
Y 4		Pan head screw 2 x 10mm	2
Y 5		Pan head screw 2 x 12mm	1
Y 6		Pan head screw 2 x 15mm	2
Y 7		Pan head screw 2.6 x 3mm	3
Y 8		Pan head screw 2.6 x 4mm	4
Y 9		Pan head screw 2.6 x 7mm	2
Y10		Pan head screw 2.6 x 8mm	4
Y11		Pan head screw 2.6 x 10mm	1
Y12		Pan head screw 3 x 4mm	3
Y13		Pan head screw 3 x 5mm	10
Y14		Pan head screw 3 x 6mm	7
Y15		Pan head screw 3 x 12mm	3
Y17		Tapping screw 3 x 4mm	4
Y18		Tapping screw 3 x 6mm	6
Y20		Regular hexagon nut 3mm	2
Y21		Washer 2.7 x 10 x 0.5mm	4
Y22		Washer 3 x 8 x 0.5mm	4
Y23		Spring washer 2.6mm	6
Y24		External "E" ring 1.5mm	7
Y25		External "E" ring 1.9mm	1
Y26		External "E" ring 3.2mm	5
Y27		Graphite nylon washer 2 x 4 x 0.25mm	4
Y28		Graphite nylon washer 2 x 4 x 0.5mm	2
Y29		Graphite nylon washer 2.5 x 4.7 x 0.13mm	4
Y30		Graphite nylon washer 1.8 x 12 x 0.5mm	1
Y31		Graphite nylon washer 4 x 6.5 x 0.25mm	1
Y32		Graphite nylon washer 5.2 x 8 x 0.5mm	1
Y33		Graphite nylon washer 3 x 5.4 x 0.5mm	1
Y34		Washer 2.5 x 4.4 x 0.4mm	1



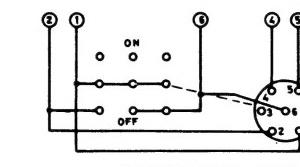
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TM-4600  
 1973 7.25 CHK.  
 Oct. 1, 1975 CHK.

## **SCHEMATIC DIAGRAM**

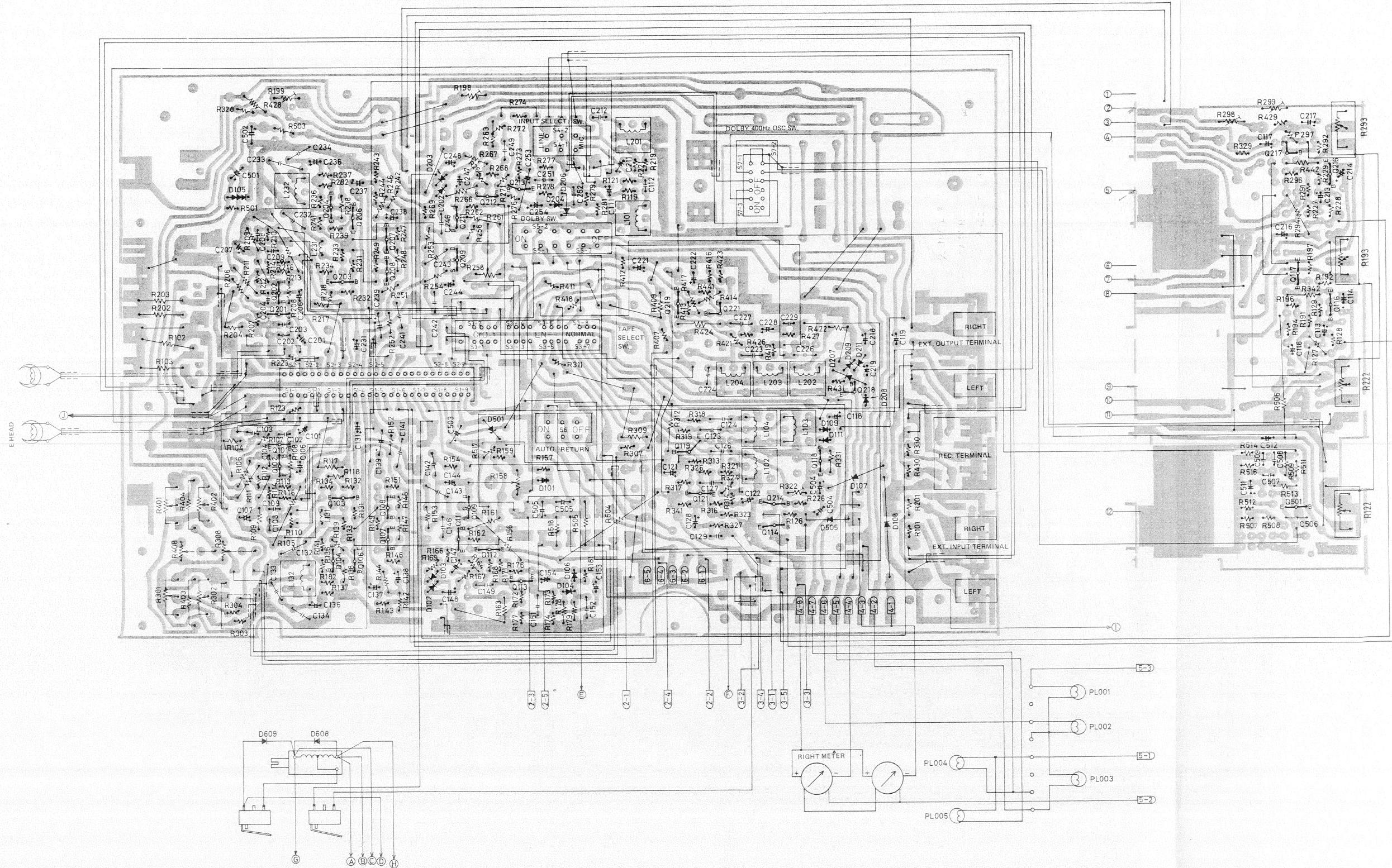


- S1 RECORD-PLAY SWITCH
- S2 RECORD-PLAY SWITCH
- S3 TAPE SELECT SWITCH
- S4 RECORD MODE SWITCH
- S5 DOLBY SWITCH
- S6 AUTO RETURN SWITCH
- S7 DOLBY CALIBRATION OSC SWITCH



**Subject to change without notice.**

WIRING DIAGRAM



## WIRING DIAGRAM

